

ARTICLE 34

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**CLAIMS**

1. A method of fabricating a semiconductor device including a step of growing a tapered epitaxial layer (18; 126) upon a supporting surface (13; 118) in a single epitaxial growth step by chemical beam epitaxy, the plane of the taper being substantially perpendicular to the supporting surface, characterised in that the tapered epitaxial layer is grown using a mechanical shadow mask (22).
2. A method according to Claim 2 characterised in that the tapered epitaxial layer is grown in the same growth step as an untapered epitaxial layer (12; 116).
3. A method according to Claim 1 or 2 characterised in that the mechanical shadow mask comprises a silicon wafer (92) having etched apertures (23) and an oxide film coating (91) upon which deposition does not occur at temperatures used for growth by chemical beam epitaxy.
4. A method according to any preceding claim characterised in that the semiconductor device is a device (31, 100) for guiding radiation.
5. A method according to Claim 4 characterised in that the semiconductor device is an optical waveguide (100).

AMENDED SHEET  
IPEA/EP